EXTERNAL COBALT 60 RADIATION THERAPY IN CANCER CERVIX UTERI

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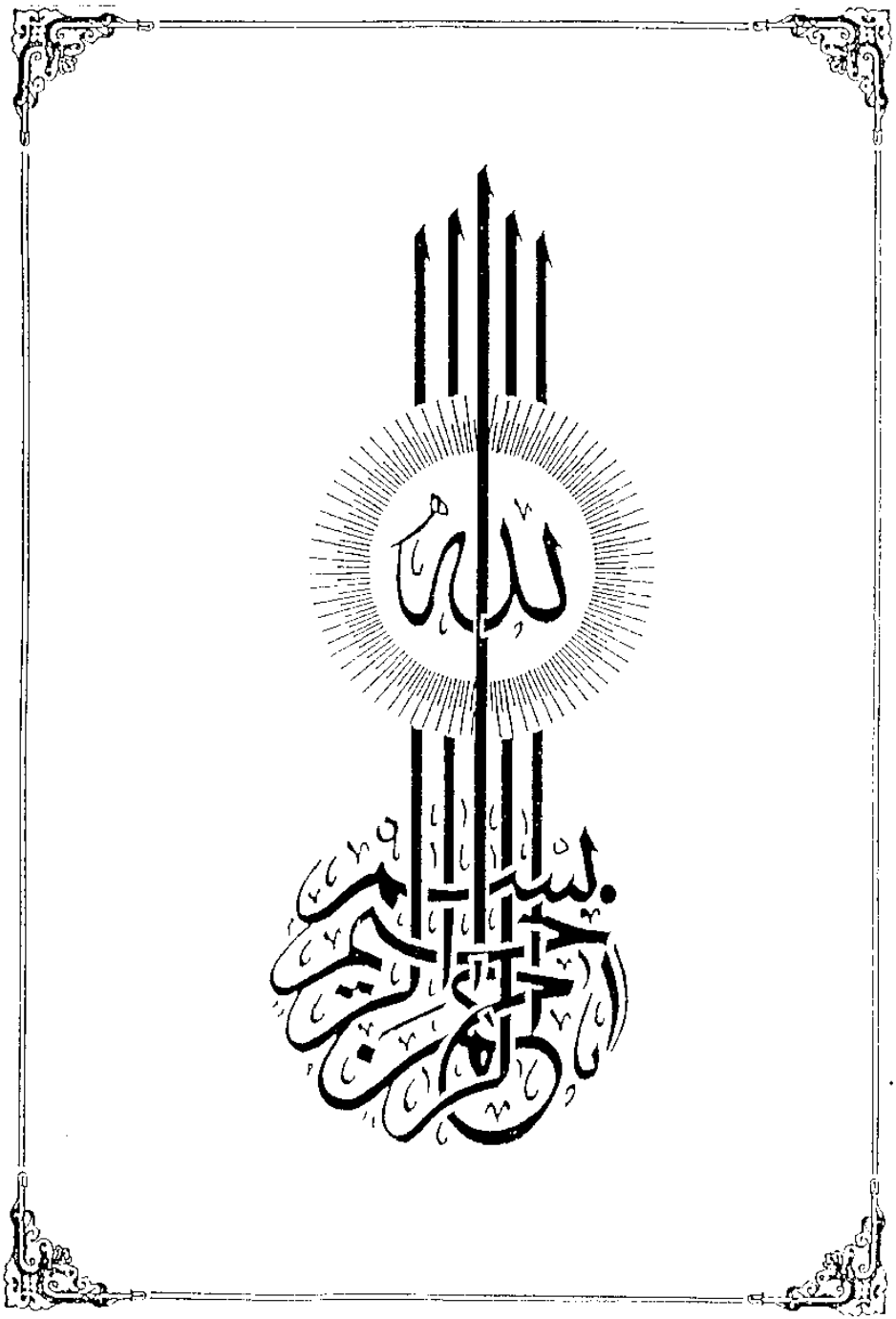

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INTRODUCTION

Cancer incidence shows trends of increasing rates among the most of the developed countries , being the third cause of mortality in humans (WHO 1976) . This is obviously noticed in cancer of the bronchus in males , the breast and cervix in females .

In Egypt the relative frequancy incidence of the carcinoma of the cervix uteri constitutes the second most frequent female malignancy surpassed only by the breast carcinoma . (Mahfouz M.M. et al., 1979 , 1982.)

Great evolution has been developed in methods of early detection , technology of diagnosis and modality of treatment of cancer cervix .

The year 1897 is significant and symbolic for the development of techinques used in the treatment of carcinoma of the cervix uteri , it was that year that radium was discovered by Marie Curie Sklodowska , and that Wertheim carried out his first operation on a patient with cervical carcinoma . The simultaneous development of these two techniques (radiotherapy and surgery) at the beginning of this century set off a controversy as which of these approaches is to be preferred.

(Paterson , Tod and Russell ., 1950 ; Marie Curie Hospital London , 1951 ; Van Herik , 1960 ; Charles Reed , 1948.) The question still remains unresolved today . (Einhorn N, 1980) reported that , from the fund of experience built up over the years , however , it is now evident that niether of these approaches is the more suitable one for all cervical carcinoma patients .

AIM OF THE WORK

The aim of the work is to study the external Co^{60} radiation treatment either alone or combined with surgery versus the usual combined intracavitary and and external irradiation in cases of cancer cervix uteri .

REVIEW OF LITERATURE

EMBRYOLOGY OF THE FEMALE GENITAL TRACT

The uterine tubes , uterus , most of the vagina are derived from the paramesonephric ducts (Mullerian Ducts) . The Mullerian ducts appear on the posterior abdominal wall of the six week old embryo. They develop as an invagination of the coelomic epithelium into the underlying mesenchyme on the lateral side of the mesonephros . The cranial end of the groove remains as the abdominal ostium of the uterine tube and later develops fimbriae . The caudal end of the invagination froms a solid bud of cells that grow caudally lateral to the mesonephric duct . On reaching the pelvic region , the paramesonephric duct, crosses the mesonephric duct ventrally to reach its medial side. The Mullerian Ducts continue to grow caudally . Now they lie close to each other in the midplane , and they fuse to form a solid bud By the ninth week of development , the caudal tip of the bud reaches the posterior wall of the urogenital sinus. As the Mullerian Ducts descend through the pelvis anterior to the developing rectum and behind the primitive bladder , they pull towards the midline a transverse fold of coelomic epithelium and underlying mesenchyme on each side , which when the ducts fuse , forms the broad ligaments . Each Mullerian Duct may

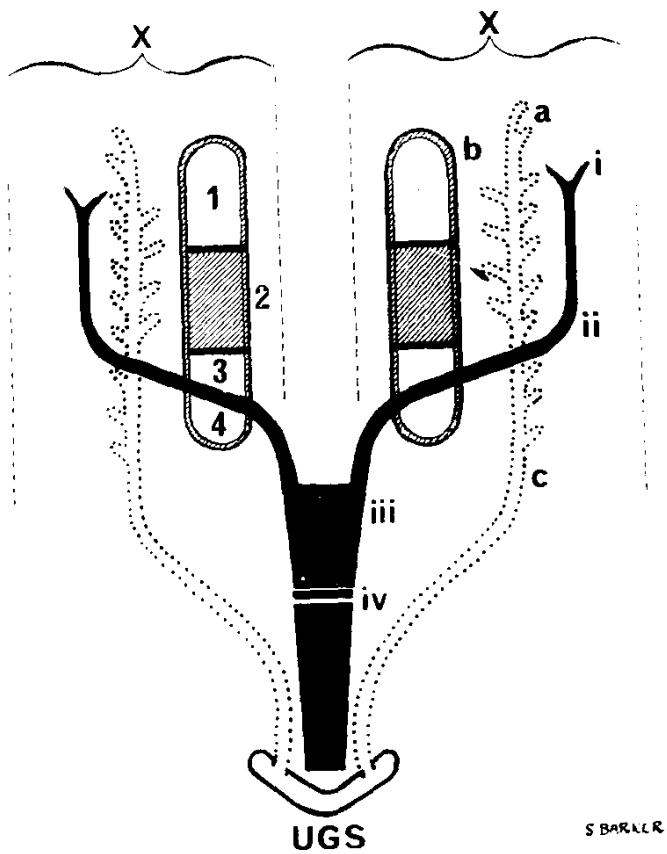

Fig. 1. Diagram of Urogenital system in 20 mm. (7 week) Human Embryo Intermediate Cell Mass
Shaded areas-Genital Ridge.1.infundibulo pelvic ligament.2-Ovary 3-Ovarian ligament 4-Round ligament.
Dotted outline-Wolffian ducts a-pronephric tubules b- Genital tubules c Mesonephros
Solid black - Mullerian Ducts i Fimbriae ii Fallopian Tube iii Uterus iv vagina (upper 3/4)
UGS - Urogenital sinus
"Quoted from Shaw's Textbook of Gynaecology(9thEd.)

be divided into three regions

1) A cranial vertical part , which will form the upper portion of the uterine tube , (Fallopian tubes)

2) A caudal vertical part , which fuses with its fellow of the opposite side to form a common tube from which the uterus and the upper three fourths of the vagina develop by the third month with a midline septum , later by the fourth and the fifth months the septum disappears, the muscle wall of the uterus and the mucous membrane lining are differentiated . When the caudal bud of the paramesonephric ducts reachs the posterior wall of the urogenital sinus they project as a solid Mullerian tubericle , around it there is a solid proliferation of the urogenital sinus on each side called sinovaginal bulb . By canalisation of that bulb , the lower quarter to one third of the vagina is formed and the hymen represents the reminants of the sinovaginal bulb . The vagina is , therefore , developed in its upper three quarters from the paramesonephric duct and the lower fourth from the urogenital sinus .The epithelium of the vagina and the portio - vaginalis of the cervix , since it is stratified , is derived from an upgrowth of the epithelium of the urogenital sinus . In both the cervix and the vagina of

an adult , an anterior and a posterior columns of the mucous membrane can be recognised which represent the remains of the septum between the two paramesonephric ducts (See fig 1)

(Quoted from show's Textbook of Gynacology and Obstetrics 9th Edition)

THE ANATOMY OF THE UTERUS

The uterus is a hollow flattened pear - shaped muscular organ , situated in the cavity of the pelvis between the urinary bladder and the rectum . It is retained in its position by the round and broad ligaments on each side . Its upper end or base is directed upward and forward ; its lower end , or apex , downward and backward , in the line of the axis of the inlet of the pelvis - It therefore forms an angle with the vagina , since the direction of the vagina corresponds to the axis of the cavity and the outlet of the pelvis . The uterus measures about three inches in length , two in breadth at its upper part and nearly an inch in thickness . It consists of two parts ; (1) the body : with its upper broad extremity , the fundus , and (2) the cervix which is partly above the vagina and partly in the vagina . The division between the body and the cervix is indicated externally by a slight constriction , and by the reflection of the peritoneum from the anterior surface of the uterus , on to the urinary bladder , and internally by a narrowing of the canal , called the internal os . (Fig 2) .

The body gradually narrows from the fundus to the neck. Its anterior surface is flattened , covered by peritoneum ,

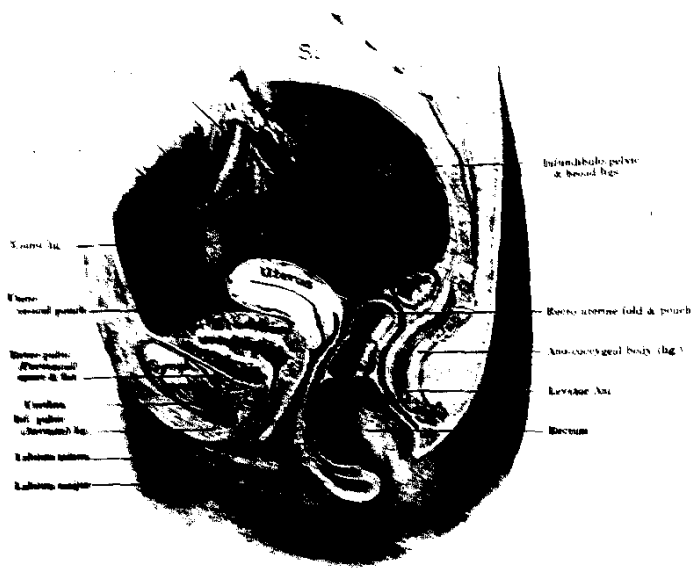

Fig.2- The Female True pelvis, in median section
"Quoted from Grant's Atlas of Anatomy.(4th Ed.)

which becomes seperated from it at its union with the cervix , in order to form the utero - vesical pouch , which lies between the uterus and the urinary bladder - Its posterior surface is convex , covered by peritoneum throughout , and separated from the rectum by some convolutions of the small intestine . Its lateral margins are concave , and give attachment to the Fallopian tube above , the round ligament below and in front of this , and the ligament of the ovary behind both of these structures . (Fig 3)

The cervix is the lower cylindrical constricted sigment of the uterus . The upper end of the vagina is attached around its circumferance denoting its two portions , supravaginalis and portiovagivalis , and forming circular cul - de - sac around the cervix which is arbitrarity divided into four fornices the anterior fornix is the shallowest , while the posterior fornix is the deepest .

The supravaginal portion is not covered with peritonium in front , as a pad of cellular tissue interposes between it and the urinary bladder . Behind , the peritoneum extends down the posterior surface of uterus to the level of internal os and the upper fourth of the vagina where the peritoneum is reflected